CLAIMS

What we claim is:

1. An enzymatic nucleic acid molecule which specifically cleaves RNA derived from hepatitis C virus (HCV), wherein the binding arms of said enzymatic nucleic acid molecule comprises sequences complementary to any of substrate sequences defined as Seq. ID Nos. 1-4554, 4556-4640, and 4683-4797.

2. An enzymatic nucleic acid molecule which specifically cleaves RNA derived from hepatitis C virus (HCV), wherein said enzymatic nucleic acid molecule comprises sequences defined as Seq. ID Nos. 4798-9352, 9354-9442, and 9485-9636.

3. The enzymatic nucleic acid molecule of claim 1, wherein said enzymatic nucleic acid molecule is selected from the group consisting of Hammerhead, Inozyme, G-cleaver, DNAzyme, Amberzyme, and Zinzyme motifs.

4. The enzymatic nucleic acid molecule of claim 3, wherein said Inozyme enzymatic nucleic acid molecule comprises a stem II region of length greater than or equal to 2 base pairs.

5. The enzymatic nucleic acid molecule of claim 1, wherein said enzymatic nucleic acid comprises between 12 and 100 bases complementary to said RNA derived from HCV.

6. The enzymatic nucleic acid molecule of claim 1, wherein said enzymatic nucleic acid comprises between 14 and 24 bases complementary to said RNA derived from HCV.

7. A pharmaceutical composition comprising the enzymatic nucleic acid molecule of claim 1 or claim 2, in a pharmaceutically acceptable carrier.

8. A mammalian cell including an enzymatic nucleic acid molecule of claim1 or claim 2.

9. The mammalian cell of claim 8, wherein said mammalian cell is a human cell.

10. An expression vector comprising nucleic acid sequence encoding at least one enzymatic nucleic acid molecule of claim 1, in a manner which allows expression of that enzymatic nucleic acid molecule.

11. A mammalian cell including an expression vector of claim 10.

12. The mammalian cell of claim 10, wherein said mammalian cell is a human cell.

13. A method for treatment of cirrhosis, liver failure or hepatocellular carcinoma comprising the step of administering to a patient the enzymatic nucleic acid molecule of any of claims 1 or 2 under conditions suitable for said treatment.

14. A method for treatment of cirrhosis, liver failure and/or hepatocellular carcinoma comprising the step of administering to a patient the expression vector of claim 10 under conditions suitable for said treatment.

15. A method of treatment of a patient having a condition associated with HCV infection, comprising contacting cells of said patient with the nucleic acid molecule of any of claims 1 or 2, and further comprising the use of one or more drug therapies under conditions suitable for said treatment.

16. A method for inhibiting HCV replication in a mammalian cell comprising the step of administering to said cell the enzymatic nucleic acid molecule of any of claims 1 or 2 under conditions suitable for said inhibition.

17. A method of cleaving a separate RNA molecule comprising, contacting the enzymatic nucleic acid molecule of any of claims 1 or 2 with said separate RNA molecule under conditions suitable for the cleavage of said separate RNA molecule.

18. The method of claim 17, wherein said cleavage is carried out in the presence of a divalent cation.

19. The method of claim 18, wherein said divalent cation is Mg^{2+}.

20. The enzymatic nucleic acid molecule of claim 1 or claim 2, wherein said nucleic acid is chemically synthesized.

21. The expression vector of claim 10, wherein said vector comprises:

    a. a transcription initiation region;

b. a transcription termination region;

c. a nucleic acid sequence encoding at least one said nucleic acid molecule; and

wherein said sequence is operably linked to said initiation region and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

22. The expression vector of claim 10, wherein said vector comprises:

a. a transcription initiation region;

b. a transcription termination region;

c. an open reading frame;

d. a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and

wherein said sequence is operably linked to said initiation region, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

23. The expression vector of claim 10, wherein said vector comprises:

a. a transcription initiation region;

b. a transcription termination region;

c. an intron;

d. a nucleic acid sequence encoding at least one said nucleic acid molecule; and

wherein said sequence is operably linked to said initiation region, said intron and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

24. The expression vector of claim 10, wherein said vector comprises:

a. a transcription initiation region;

b. a transcription termination region;

c. an intron;

d. an open reading frame;

e. a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and

wherein said sequence is operably linked to said initiation region, said intron, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

25. The enzymatic nucleic acid molecule of claim 1 or claim 2, wherein said enzymatic nucleic acid comprises at least one 2'-sugar modification.

26. The enzymatic nucleic acid molecule of claim 1 or claim 2, wherein said enzymatic nucleic acid comprises at least one nucleic acid base modification.

27. The enzymatic nucleic acid molecule of claim 1 or claim 2, wherein said enzymatic nucleic acid comprises at least one phosphate modification.

28. The method of claim 15, wherein said drug therapies is type I interferon.

29. The method of claim 28, wherein said type I interferon and the enzymatic nucleic acid molecule is administered simultaneously.

30. The method of claim 28, wherein said type I interferon and enzymatic nucleic acid molecule is administered separately.

31. The method of claim 28, wherein said type I interferon is interferon alpha.

32. The method of claim 28, wherein said type I interferon is interferon beta.

33. The method of claim 28, wherein said type I interferon is consensus interferon.

34. The method of claim 28, wherein said type I interferon is polyethylene glycol interferon.

35. The method of claim 28, wherein said type I interferon is polyethylene glycol interferon alpha 2a.

36. The method of claim 28, wherein said type I interferon is polyethylene glycol interferon alpha 2b.

37. The method of claim 28, wherein said type I interferon is polyethylene glycol consensus interferon.

38. A pharmaceutical composition comprising type I interferon and the enzymatic nucleic acid molecule of claim 1 or claim 2 , in a pharmaceutically acceptable carrier.